

RECOVERED OIL AND WATER MANAGEMENT PLAN

RESPONSIBLE PARTY

Incident Name:

Responsible Party:

Spilled Material:

Spill Volume (estimate):

Spill Location:

Spill Date/Time:

Report Update Time:

Submitted By:

Approved By:

I. **FOSC:**

II. **SOSC:**

III. **RPOSC:**

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1.0 RECOVERED OIL

Oil, oil and seawater, and oil and freshwater mixtures will be collected from the spill area using oil recovery equipment deployed by the Oil Spill Response Organization (OSRO) and/or a vacuum truck supplied by another response contractor. Recovered oil and water mixtures will be immediately transported to designated waste staging areas to bulk storage fractionation tanks (frac tanks) used in the spill response operations. **Tank gauging must be conducted at that time to document the volumes of oil and water recovered.**

Proper tank, drum and container gauging is a critical component of all response actions. **Third party certified gauging contractors must be mobilized so that accurate documentation of recovered oil and oil/water volumes can be achieved.** No recovered oil, oil/water mixtures can be discharged or disposed of prior to gauging and volume inventory is complete.

Once oil has been transferred to the frac tanks and allowed to settle, as much liquid oil as possible will be separated. Potential management methods for recovered liquid hydrocarbons include: re-injection or recycling into a crude or bunker fuel process stream, oil reclamation, and/or recycling at other oil industry facilities. The volume and the presence or absence of other potential contaminants in the oil must be determined prior to recycling.

Crude oil recovered early in the clean-up operation will be the easiest to process. Injection of recovered crude into a product stream after a spill will be a preferred option.

2.0 OILY WATER

Oily water recovered as part of the cleanup process will be managed by one of the following methods:

- A. Reclaimed along with entrained oil by a third party oil reclaimer retained by Tesoro,
- B. Injected into a Responsible Party refinery wastewater or bilge water treatment plant, if available,
- C. Injected into a nearby publicly-owned treatment works (POTW) wastewater influent stream (local, state, or federal approval required), or
- D. Treated on-site in a portable, temporary wastewater treatment system in accordance to applicable surface-water quality standards and discharged (state/federal permit approval required). Where possible, oily-freshwater and oily-salt (ocean) water should be segregated since the salinity of ocean water limits its treatability.

2.1 Oily Water Decanting

Decanting of water from oily mixtures is a common procedure used during a spill response incident. Decanting is the process of draining off recovered water from portable tanks, barges, collection wells, or other storage containers to increase the available storage capacity of recovered oil.

During a response, it may become necessary for Responsible Party to request the federal and/or state on-scene coordinator (OSC) authority to decant water while recovering oil so that response operations do not cease or become impaired. Authorization from the federal on-scene coordinator (FOSC) is required in all cases; authorization from the state on-scene coordinator (SOSC) is required for decanting activities in state waters. Expeditious review and approval, as appropriate, of such requests is necessary to ensure rapid and efficient recovery operation. The request, decision and permission to decant **must** be documented.

The following criteria should be considered when determining whether decanting is applicable, unless circumstances dictate otherwise:

- A. All decanting should be done in a designated response area within a collection area, vessel collection well, recovery belt, weir area, or directly in front of a recovery system.
- B. Vessels employing sweep booms with recovery pumps in the apex of the boom should decant forward of the recovery pump.
- C. All vessels, motor vehicles and other equipment not equipped with an oil/water separator should allow retention time for oil held in internal or portable tanks and should transfer

Recovered Oil and Water Management Plan

oil/water mixtures to a vessel or on-shore equipment with approved oil-water separation technology. Unequipped vessels should not decant oil-water mixtures.

- D. Visual monitoring of the decanting area shall be maintained at all times so that discharge of oil in the decanted water is detected promptly.

3.0 DISPOSAL OF RECOVERED OIL AND OILY WATER

Recovered oil and oily water will be transported by _____ to _____ . Approved oil reclamation contractors are identified in **Attachment B** of the *Oil Spill Waste Management and Disposal Plan*. Applicable company names and contacts for the disposal of recovered oil and oily water are as follows:

1. _____
2. _____
3. _____

ATTACHMENT RO-X

RECOVERED OIL QUANTIFICATION PLAN

Incident Name: _____

Date: _____

Submitted By:

Approved By:

FOSC: _____

SOSC: _____

RPOSC: _____

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1.0 ESTIMATION METHODS FOR QUANTIFICATION OF RECOVERED OIL

The amount of spilled oil recovered during cleanup operations must be estimated. The amount of free oil, oily water, oil recovered from absorbents and decontamination water, and oil trapped in contaminated soil will be estimated separately. Materials identified as contributing to the total recovered hydrocarbons include, but are not limited to, oil collected in skimming tanks, oil from decontamination procedures, recovered oil tar balls, oily absorbents, oily debris, and oiled personal protective equipment (PPE) such as gloves and coveralls. **Table R-1** should be used to document the total amount of oil recovered in a given spill response.

1.1 Oiled Media Sampling

All samples for analysis of chemical concentrations or calculation of oil must be collected according to established sampling protocols and sent for analysis using chain of custody forms. Upon request, the responsible party will provide a copy of the material safety data sheet (MSDS) for the hydrocarbon product released for all sampling exercises. Proper PPE, Level D minimum, will be used at all times during sampling. Sampling guidelines are presented in a separate document entitled *The Spill Response Sampling Plan*.

1.2 Estimates of Recovered Oil and Oily Water

During spill activities, a qualified third party contractor will be retained to record the data needed to estimate total oil recovery. Oil-containing media generated and estimates of the amount of recovered oil include free liquids recovered from surface waters (oil and water mixture) and oily water. Various containers may be used to collect and store recovered oily water containing recovered liquid hydrocarbons.

Free liquids will be measured according to the following procedure:

- Liquid will be removed from the water by pumping into ballast tanks, fractionation or other storage tanks on-shore.
- The liquids will be allowed to sit for a minimum of 30 minutes to three hours to allow separation into the two fractions (water and oil).
- The still liquid will be gauged to determine the total depth of liquid, the thickness of the water layer, and the thickness of the oil layer. Gauging will be done with a ruler or tape measure and water finding paste or similar product. Measurements will be made to the nearest quarter inch. Where possible in clean oil/water interfaces, API tank gauging methods (e.g., a reel and water paste) will be used in conjunction with engineering data such (e.g., strapping tables) to determine the oil levels and volumes in the container. When practical, multiple tank gauges will be conducted, with the results averaged for final calculations. For pure water or oil/water emulsions, multiple samples will be taken and analyzed for total petroleum hydrocarbon content. The averaged analytical results, coupled with engineering data, will be used to determine the oil content of the liquid.

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- Using the height of each layer of liquid and the surface area of the frac tank, the volume of each liquid will be calculated using the formula: **1 cu. ft. = 7.48 gal.** Calculated values will be reported on the summary.
- After measurement and unified command approval, the recovered oil/water will be managed in accordance with the methods selected for the spill event, typically to an approved reclaimer/recycler.

A qualified contractor will collect a representative sample from each hold or container of recovered oil according to established sampling protocol for each vessel arriving at the facility intending to offload recovered spill material. Each sample will be submitted for a bottom sediment and water (BS&W) analysis. From the result, subtract percent solids and water to yield the total estimated percent oil.

Equation 1

$$(\% \text{ oil from BS\&W}) (\text{hold/container volume in gallons}) = \text{oil volume (gallons)}$$

This information should be included in **Table R-1**. At hour 33 after the spill occurs, a qualified contractor will initiate collecting representative samples from all containers in the field until hour 36, in accordance with established sampling protocol. At hour 36, all sampling ends and all collected samples will be submitted for BS&W analysis as per above paragraph. This process is repeated for longer spill requiring longer response periods.

1.3 Estimates of Recovered Oil from Booms/Swipes/Absorbents and PPE

The oil in booms, swipes and absorbents may be estimated separately from the oily debris and PPE. All oily material is typically collected and placed into heavy-duty garbage bags. The garbage bags are then placed into a lined container, such as a roll off container, for transport to a waste handling and processing facility. It is assumed that the bags of oily material will not have any free liquid, as characterized by the type of spilled oil.

Manufacturers' estimates for the amount of oil on swipes/absorbents can be determined by assuming half the recovered absorbents' weight may be attributed to oil loading. The oiled booms/swipes/absorbents need to be weighed. Calculation can then be made as follows to calculate the volume of the oil in gallons:

Equation 2

$$(\text{absorbent weight in lbs}) (50 \%) (0.018 \text{ ft}_3/\text{lb oil}) (7.48 \text{ gal/ft}_3) = \text{oil volume (gallons)}$$

Oil collected from sorbent pads will be estimated by multiplying the known absorbency of the pads (gallons per pad) by the number of pads. Since the sorbent pads have, on average, been saturated to approximately 50 percent, this value will be divided by two.

Equation 3

(pad absorbency in gallons) (# of pads) (50%) = oil volume (gallons)

The procedure for determining the amount of liquid hydrocarbons on oily material will be as follows:

- (a) Visually check all garbage bags to make a determination of the contents.
- (b) Sort the garbage bags by waste type (tar balls, absorbent pads, etc.), as determined by the majority of the contents of the garbage bag into separate roll-off containers.
- (c) For each waste type, use the following guidelines for collecting a representative sample:
 - Mark off a 4-foot square grid pattern in each roll-off.
 - Within each grid, collect a grab sample from a garbage bag at three different layers (top, middle, and bottom).
 - Combine the individual grid samples into one composite sample.
 - Collect three 16-ounce samples from the composite sample. Submit one for analysis and keep two for retains.
- (d) Analyze each sample for total hydrocarbon content using a third party analytical laboratory facility. The samples will be analyzed for total petroleum hydrocarbons (TPH) using the specific method the state regulatory agency recommends to characterize TPH.
- (e) For each waste type, weigh the garbage bags of oily material to obtain a gross weight.
- (f) Determine the actual weight of the recovered oil in the material by multiplying the weight of the oily material by the hydrocarbon content result of the composite sample. Determine the oil volume by dividing the actual weight by the specific gravity of the spilled oil. The information should be included in **Table R-1**.

Equation 4

(weight of recovered oily material [in kg]) x
x
(TPH concentration [mg/kg]) x (0.0022lb/kg)
(specific gravity of petroleum material spill) = gallons of oil

1.4 Estimates of Recovered Oil from Decontamination Water

Decontamination water will be collected on-site and the total volume will be recorded. The amount of liquid in each container will be determined by using engineering data available on the container such as strapping tables or construction drawings, by actual field measurements, or by weighing the containers. Representative composite samples of the wash water should be collected and analyzed for total petroleum hydrocarbons (TPH) using the specific method the state regulatory agency recommends to characterize TPH. The amount of recovered oil contained in the decontamination water will be estimated by using the average total petroleum hydrocarbon (as measured by Environmental Protection Agency [EPA] Method 418.1) analytical results from analysis of representative composite samples collected. The estimate of oil recovered in decontamination waters will not account for variables such as evaporation or operational losses. The average TPH will be converted into total gallons of oil by the following equation:

Equation 5

$$(\text{TPH mg/L}) \times (\text{decon volume gal}) \times (1 \times 10^{-6} \text{ kg/mg}) \times (8.34 \text{ lbs/gal}) \times (0.018 \text{ ft}^3/\text{lb oil}) \times (7.48 \text{ gal/ft}^3) = \text{total gallons of oil recovered}$$

1.5 Estimates of Recovered Oil from Contaminated Soil

Stockpiled contaminated soil will be cross-sectioned by on-site survey personnel and the total volume in cubic yards will be recorded. Representative samples of the stockpiled soil should be collected and analyzed for TPH. The amount of recovered oil contained in contaminated soil will be estimated by using the average TPH analytical results. The estimate of oil recovered in soil will not account for variables such as soil moisture or losses due to volatilization so the estimate will be conservative. The average TPH will be converted into gallons of oil by the following equation:

Equation 6

$$(\text{TPH mg/kg}) \times (\text{Volume}) \times (1 - \text{COARSE}) \times (1 \times 10^{-6} \text{ kg/mg}) \times (125 \text{ lbs/ft}^3 \text{ soil}) \times (27 \text{ ft}^3/\text{yd}^3) \times (0.018 \text{ ft}^3/\text{lb oil}) \times (7.48 \text{ gal/ft}^3) = \text{gallons of oil}$$

Where:

TPH =	Unweighted mean of TPH results (including duplicate) to date in mg/kg
Volume =	Volume of recovered contaminated soil in yd ³
COARSE =	Discount for coarse material >2 inches (default estimated at 20% or 0.2 for the formula)

1.6 Compilation of Recovered Oil Estimates and Reporting

The total estimated amount of liquid oil recovered, oil recovered in contaminated soil and in sorbent pads/booms, and oil recovered with decontamination water will be combined into an overall oil recovery estimate. This estimate will be calculated and/or measured from recovered oil skimmings and recovered oily materials. The estimate of oil recovered is not an estimated of

Recovered Oil Quantification Plan

spill size. An estimate of spill size will not be possible until the complete extent of surface and/or subsurface contamination has been determined at a later date.

A report must be prepared containing all calculations of the total oil recovered, including free liquid and oil contained in contaminated soils. **Table R-1**, completed with pertinent information from this spill, should be included in the report. The report will contain estimated volume of contaminated soil recovered, conversion factors for estimating the amount of oil in the contaminated soil, estimated volume of oil recovered in sorbent pads, and total estimate of total oil recovered.

ATTACHMENT RO-X

<p>OIL SPILL REQUEST FOR DECANTING AUTHORIZATION</p>

Responsible Party (RP): _____

Date: _____

The RP hereby requests permission to decant free water from its on-water storage systems. The free water collected during skimming operations will be decanted back into a contaminated area (i.e., into containment boom).

The following information is provided for your consideration:

RP: _____

Name of Oil Spill: _____

Location of Spill (latitude/longitude): _____

Vessel Names: _____

Product: _____

Skimming Platforms: _____

Weather: _____

Tides: _____

☐ Approved ☐ Disapproved

RP Representative Signature: _____

Dates Approval Effective: _____

Conditions (circle numbers that apply):

1. All decanting should be done in a designated response area within a collection area, vessel collection well, recovery belt, or weir area, or directly in front of a recovery system.
2. Visual monitoring of the decanting shall be maintained at all times so that discharge of oil in the decanted water is detected promptly.
3. Decanting in areas where vacuum trucks, portable tanks, or other collection systems are used for shore cleanup will be subject to the same rules as vessels.
4. Additional site-specific conditions (continue on reverse side if necessary).

USCG

SOSC

RECOVERED OIL AND WATER MANAGEMENT PLAN

RESPONSIBLE PARTY

Incident Name:

Responsible Party:

Spilled Material:

Spill Volume (estimate):

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Spill Date/Time:

Report Update Time:

Submitted By:

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I. FOSC:

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1. _____
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Example

ATTACHMENT RO-X

RECOVERED OIL QUANTIFICATION PLAN
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Incident Name: _____

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Submitted By:

Approved By:

FOSC: _____

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USCG

SOSC

Specific Instructions Page

By clicking on the **i**, you've reached this instructional page, which is under construction at the moment. It will include further instruction not available in the form, to assist in completing the permit.

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Who signs this form?

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